243416

December 2, 2010

Jerry Blustein
Paulus, Sokolowski & Sartor
67 Mountain Avenue
Warren, NJ 07059

Project: Geophysical Survey – Newark Waterfront Properties – Brill St. – Newark, NJ.

Dear Jerry;

The following is a brief letter report detailing the results of the geophysical survey performed at the above referenced site. Site maps and/or pertinent ground penetrating radar (GPR) transects are contained in the report and Appendix A. It would be helpful to review Appendix A and the site maps when reading this report. TPI's standard practice is to indicate the results of the geophysical survey by marking all identified utility lines, tanks, and GPR anomalies etc. with chalk, paint or flags. It should be noted that this report is a means of transferring data and results of data interpretation, which was performed during the time allotted for the fieldwork

Project Scope and Visual Site Inspection

TPI Environmental, Inc. (TPI) was contracted by Paulus, Sokolowski & Sartor (client) to scan areas of concern (AOC) at the above referenced location to confirm or deny the presence of possible unknown underground storage tanks (USTs) and other significant subsurface metallic features. The site consists of three open lots at the above address and as indicated on Figure 1. Upon arrival to the site on November 8, 2010, TPI reviewed the site history with the client and performed a site walk to search for any evidence of USTs. Based on the review of the site history, three AOCs were designated for the geophysical survey. During the site walk the following areas of interest were noted;

- AOC 1 – No initial evidence of USTs was observed. Evidence of storm sewer and electric utilities was noted.
- AOC 2 – No initial evidence of USTs was observed
- AOC 3 – No initial evidence of USTs was observed. Evidence of storm sewer utilities was noted.

Methodology

Geophysical surveys are typically accomplished by employing the following techniques; GPR, Fisher TW6 electromagnetic metal detection (TW6 EM), a Geonics EM61-MK2 Time – Domain Electromagnetic Detector unit (EM61), radio frequency line locating (RF), and magnetics. The EM61 is a high power, high sensitivity metal detector capable of detecting both ferrous and non-ferrous metal. The TW6 EM unit sounds an audible alarm in the presence of a large mass of metal such as an UST. A description and discussion of these geophysical methods as well as TPI's standard procedures for performing geophysical surveys is found in Appendix A. In

general, “blind surveys” are typically performed by initially scanning the site with a TW6 EM unit and/or an EM61 unit and noting areas of relatively high EM response. Then locations with a high EM response are further investigated with GPR. Known utilities are typically traced with the RF unit, GPR, and the TW6 EM unit depending on the size, matrix and conductive properties of the line. EM units are typically not effective and practical in areas underlain with reinforced concrete and/or the presence of ubiquitous metallic objects.

During EM61 surveys the EM response is sampled at four time positions at each survey point (every 0.62-feet). These four readings allow for the discrimination of targets based on target size, shape, material, and orientation. Furthermore the EM61 is designed in such a way that it is possible to distinguish deeper objects from shallow ones. In channel D mode the system suppresses near surface targets that may mask the response of deeper more important targets. This feature is useful when the purpose of the survey is to locate deeper targets, such as USTs, in the presence of near surface metallic objects such as monitor well covers.

Geophysical Survey Results

The geophysical survey at this site was accomplished with the EM61, TW6 EM and GPR units. The EM61 unit was used to scan the majority of AOCs 1, 2, and 3 with the exception of areas underlain with reinforced concrete or with in 5-feet of metallic objects (walls, vehicles, fences ect.). The TW6 EM unit was used to further constrain anomalous areas identified during the EM61 survey. EM61 data collected in the field were retained on a data recorder, processed, and presented as Figure 2, 3, and 4 in the report. The GPR survey was performed over metallic anomalies identified during the EM surveys and in areas immediately around metallic objects. Results of the geophysical survey were marked on the ground with paint and maps of the survey results are contained in this report and Appendix A. Results of the geophysical survey are as follows;

- AOC 1 – Six significant EM/GPR anomalies (A1-A6) were detected in this AOC as shown in Figure 2 and detailed in the table below.
- AOC 2 – Two significant EM/GPR anomalies (A7, A8) were detected in this AOC as shown in Figure 3 and detailed in the table below.
- AOC 3 – Four significant EM/GPR anomalies (A9-A12) were detected in this AOC as shown in Figure 4 and detailed in the table below.

Anomaly	GPR and EM Description (See GPR Images in Appendix A)	GPR #
1	22’x30’ EM anomaly. Metallic debris and excavation style GPR anomalies detected from 1’-4’ below ground surface (bgs).	
2	6’x3’ EM anomaly. Small (2’x1’) layer-like GPR anomaly at 1’ bgs.	
3	10’x7’ EM anomaly. Layer GPR anomaly at 1’ bgs. 4’ deep pipe-like anomaly running east-to-west approximately 4’ north of A3. Manhole observed adjacent to EM anomaly. Manhole opened to reveal empty pit.	
4	5’x5’ EM anomaly. Layer GPR anomaly detected at 1’ bgs.	
5	5’x5’ EM anomaly. Likely UST-like GPR anomaly at 4’ bgs.	345, 346
6	7’x10’ EM anomaly. Layer GPR anomaly at 1’ bgs. Probing rod driven to 3’ and encountered no obstructions.	
7	40’x7’ variable EM anomaly. No significant GPR anomaly. Faint layer anomaly at 2’ bgs	

8	6'x4' EM anomaly. Uneven GPR layer anomaly at <1' bgs. Probe driven down to solid/dense surface.	
9	5'x5' EM anomaly. Possible UST-like GPR anomaly at 2' bgs.	358, 359
10	Approx 10'x10' EM anomaly. Debris-style GPR anomalies detected from 1'-5' bgs.	
11	5'x5' EM anomaly. Possible UST-like anomaly at 2' bgs.	362, 363
12	5'x5' EM anomaly. Debris-style GPR anomalies detected from 1'-2' bgs.	

- TPI concludes that Anomaly 5 is likely related to an UST.
- Anomalies 9 and 11 could potentially be related to an UST or similar sized metallic feature.
- Based on the prevalence of metallic debris, the number of anomalies, and the size of some of the anomalies TPI recommends a test pit program to determine the nature of the metallic targets related to the anomalies.

TPI completes non-intrusive geophysical surveys using equipment and techniques representing best available technology. TPI does not accept responsibility for survey limitations due to inherent technological limitations or unforeseen and varying site-specific conditions such as metal-reinforced concrete. In practical terms, TPI serves to reduce the risk of encountering subsurface utilities during excavation operations or greatly increase the chance of locating man made subsurface objects depending on the goal of the project. The results of this investigation should only be used as a tool and should not be considered a guarantee regarding the presence or absence of USTs or piping.

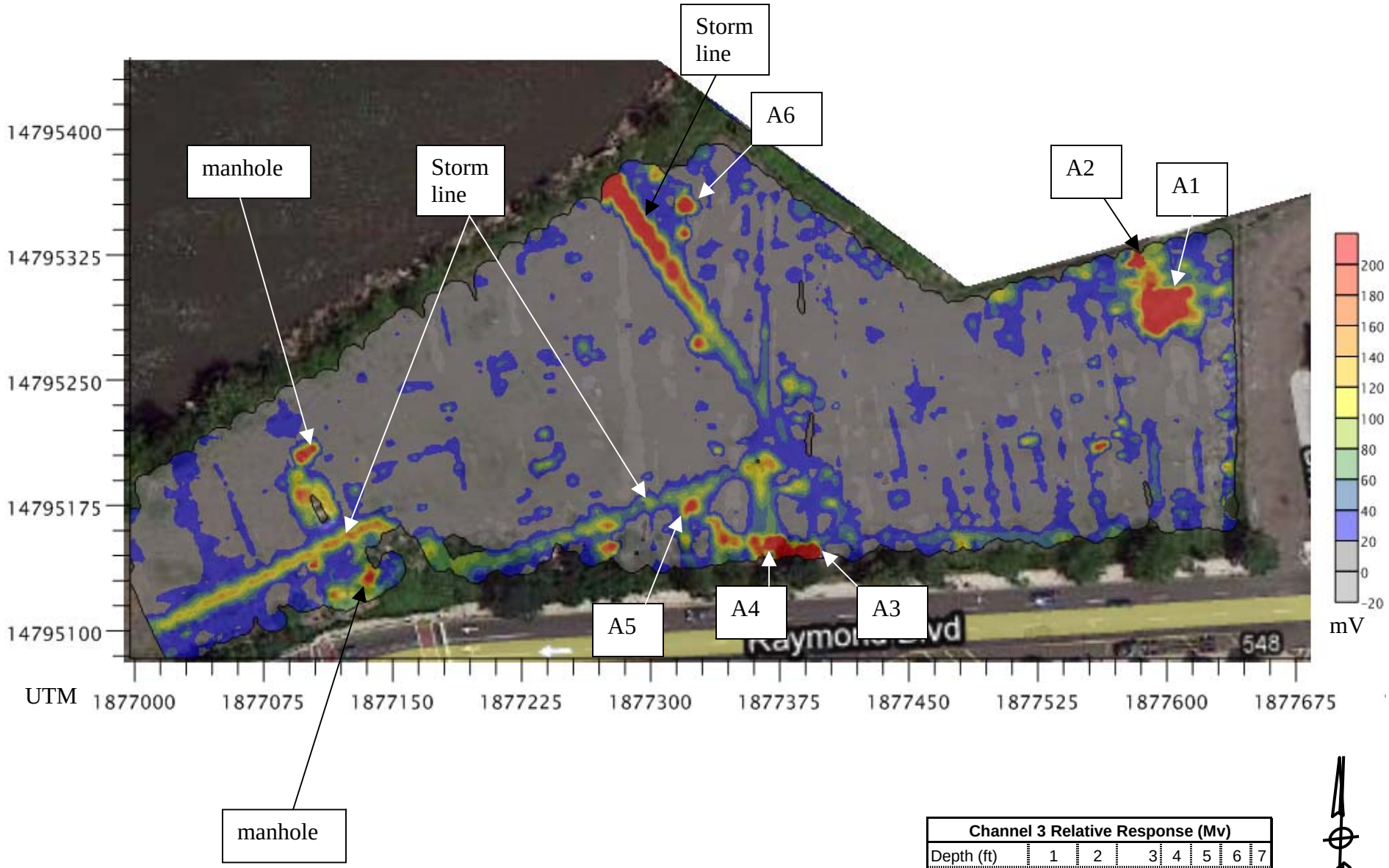
If you should require additional information or have any questions, please do not hesitate to contact me at the above phone number or email me at ffendler@tpienv.com.

Sincerely,

Frank Fendler
Frank Fendler, M.S, P.G.
President

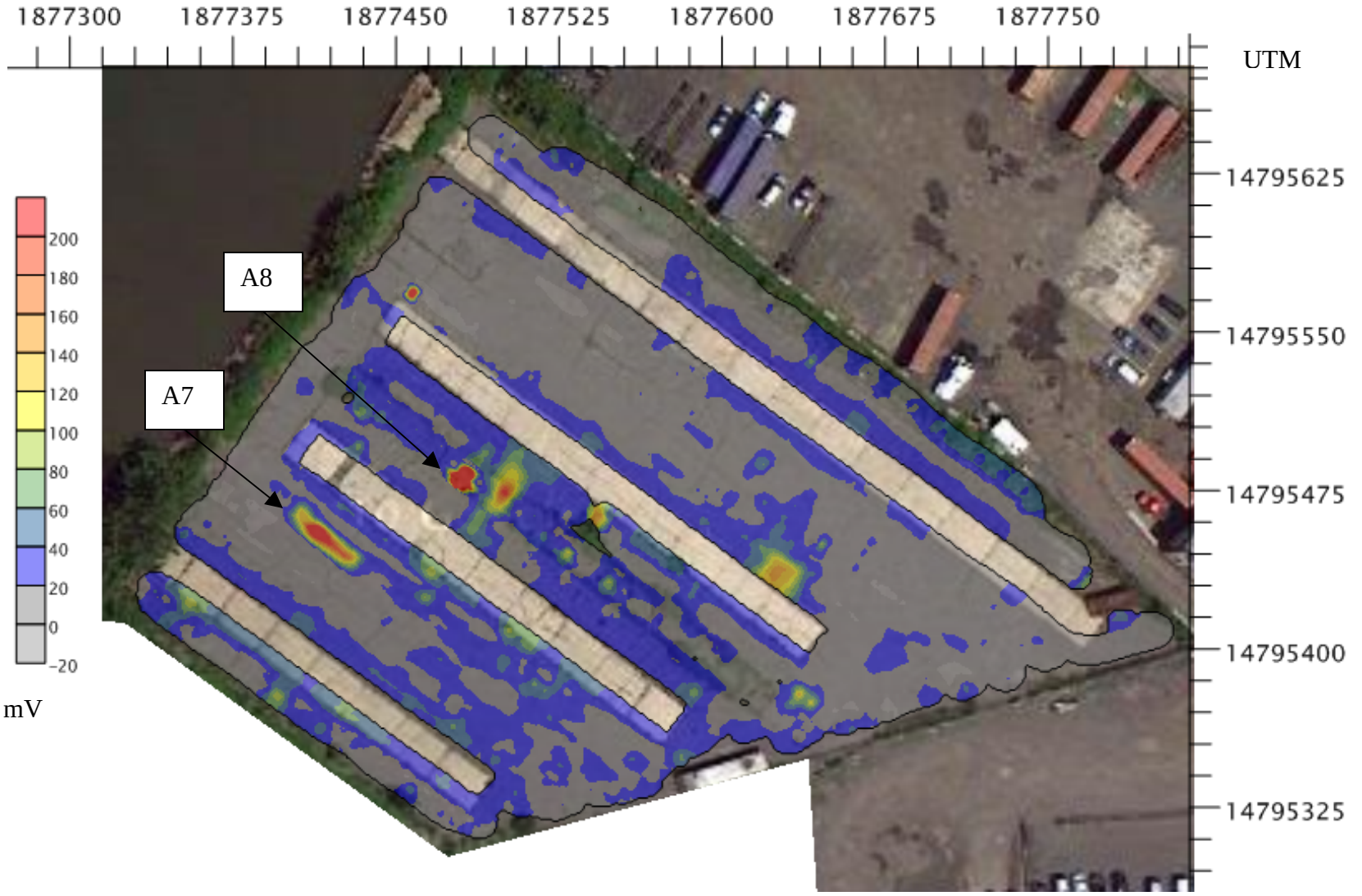
Michael Robbins
Michael Robbins, M.S.
Geologist

TPI environmental	Brill St., Newark, NJ.		Figure 1
	Client: PSS	Date: 11-8-10	Geophysical Survey Areas



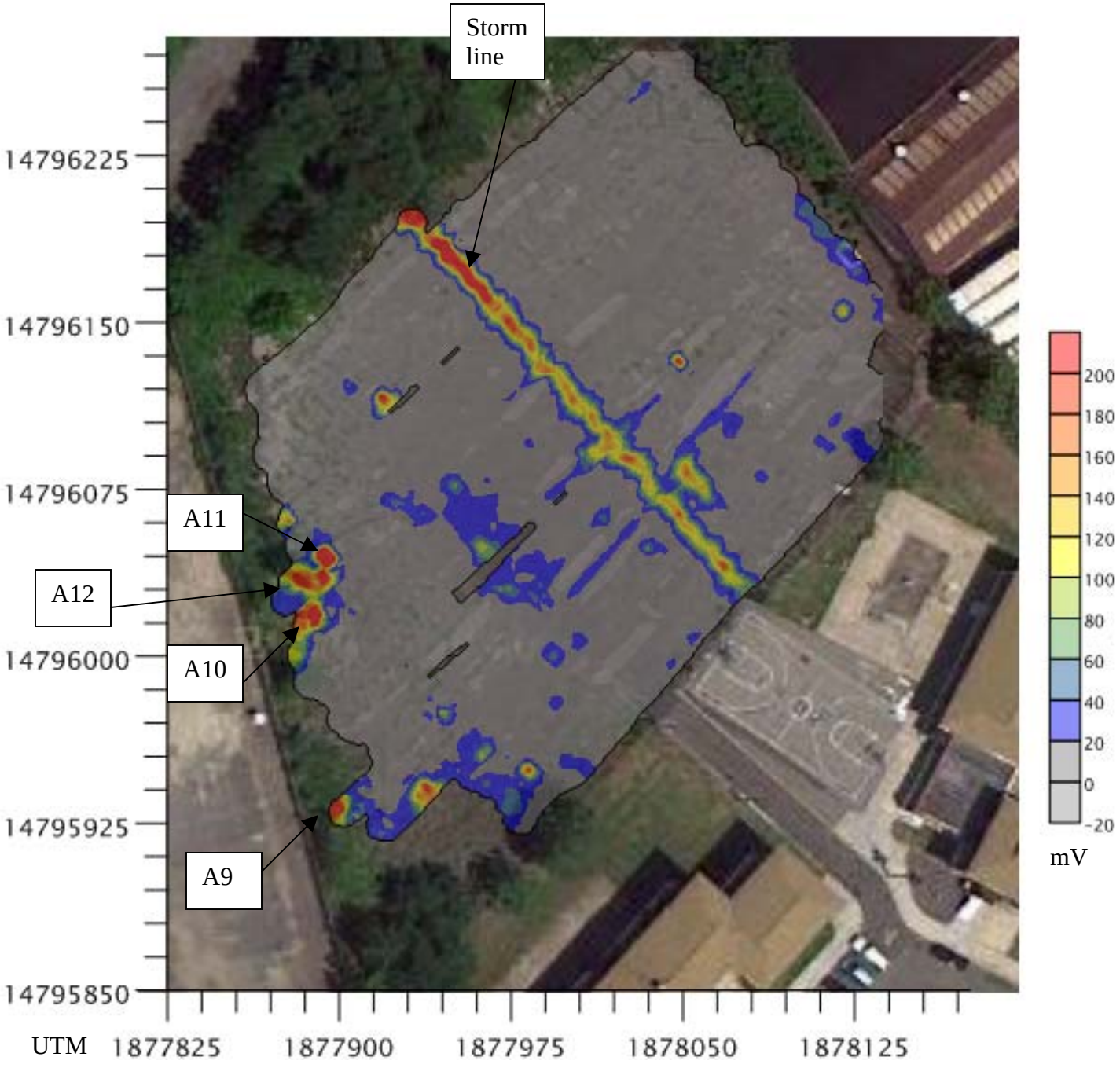
Channel 3 Relative Response (Mv)							
Depth (ft)	1	2	3	4	5	6	7
55gal. Drum	1700	500	160	60	28	13	7
8" Steel Pipe	1150	340	120	47	21	10	5

TPI environmental	Brill St., Newark, NJ		Figure 2
	Client: PSS	Date: 11-8-10	AOC1 EM61 Survey Results – Channel D



Channel 3 Relative Response (Mv)							
Depth (ft)	1	2	3	4	5	6	7
55gal. Drum	1700	500	160	60	28	13	7
8" Steel Pipe	1150	340	120	47	21	10	5

TPI environmental	Brill St., Newark, NJ.		Figure 3
	Client: PSS	Date: 11-8-10	AOC2 EM61 Survey Results – Channel D



Channel 3 Relative Response (Mv)							
Depth (ft)	1	2	3	4	5	6	7
55gal. Drum	1700	500	160	60	28	13	7
8" Steel Pipe	1150	340	120	47	21	10	5

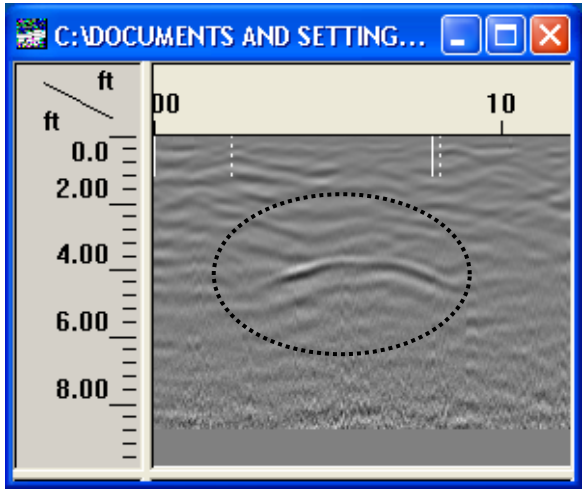
TPI environmental	Brill St., Newark, NJ.	Figure 4
	Client: PSS	Date: 11-8-10	AOC3 EM61 Survey Results – Channel D

Appendix A

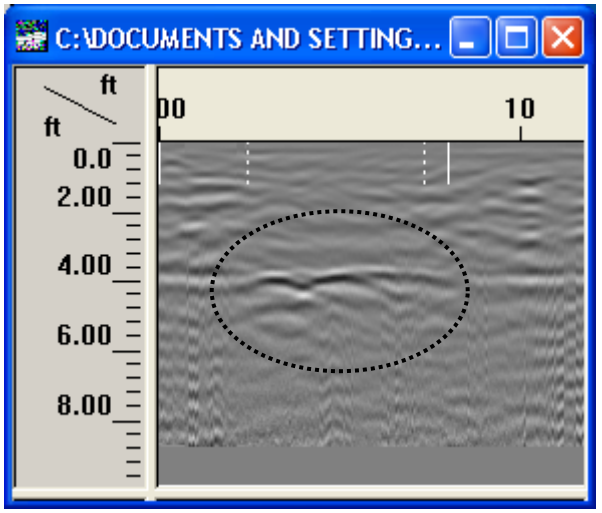
Geophysical Survey Data & Results

PO Box 518
New Hope, PA 18938
888-204-3266-Phone
tpi@tpienv.com
www.tpienv.com

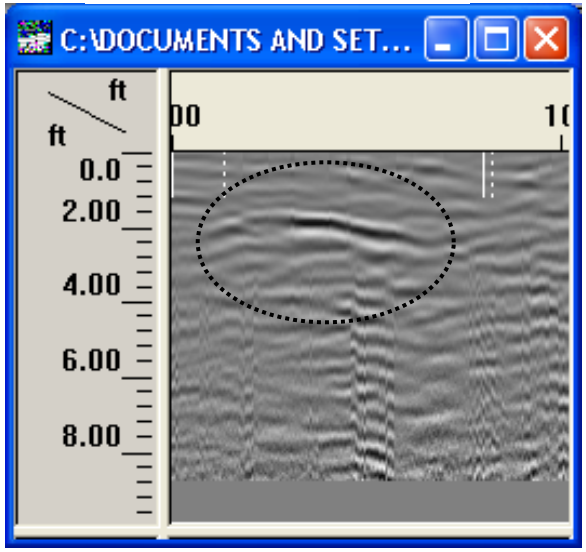
GPR Transect 345
West Across Anomaly 5



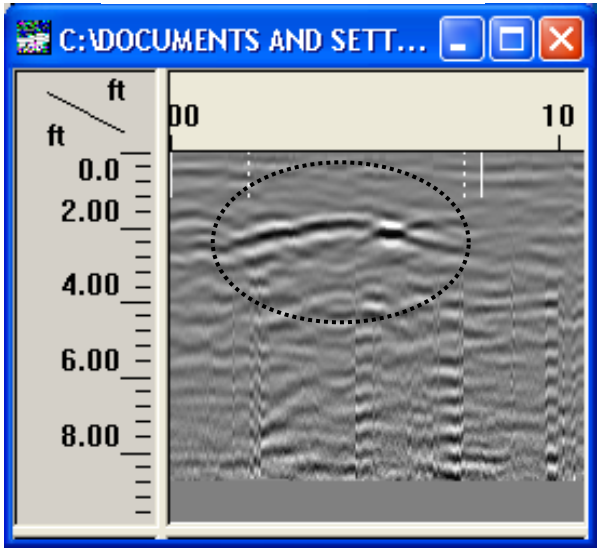
GPR Transect 346
South Across Anomaly 5



GPR Transect 358
West Across Anomaly 9

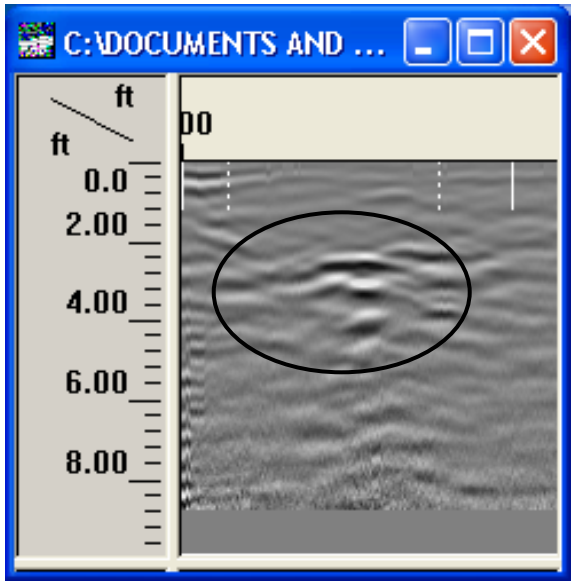


GPR Transect 359
North Across Anomaly 9

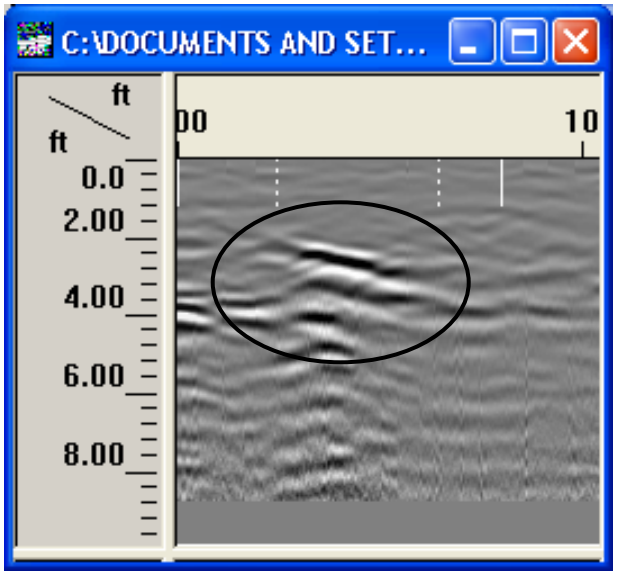


PO Box 518
New Hope, PA 18938
888-204-3266-Phone
tpi@tpienv.com
www.tpienv.com

GPR Transect 362
North Across Anomaly 11



GPR Transect 363
West Across Anomaly 11



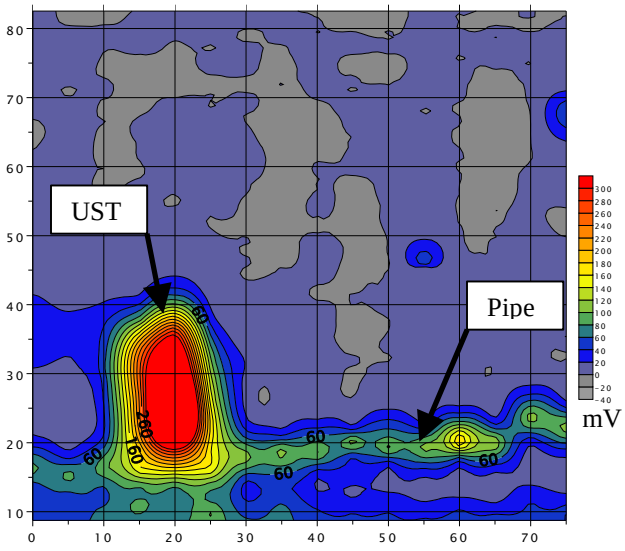
PO Box 518
New Hope, PA 18938
888-204-3266-Phone
tpi@tpienv.com
www.tpienv.com

Attachment A
TPI's Geophysical Survey Equipment & Methods

Geonics EM61-MK2

The EM61 is a high resolution time-domain metal detector which is used to detect ferrous and non-ferrous metallic objects. It consists of a powerful transmitter that generates a pulsed primary magnetic field, which induces eddy currents in nearby metallic objects. The decay of these currents is measured by two receiver coils mounted on the coil assembly. The responses are recorded and displayed by an integrated computer based digital data logger with real time numberical and graphic display. Two ports on the logger allows simultaneous collection of EM and GPS data. For further processing and interpretation data can be transferred to a laptop computer in the field and a color contoured map of the EM61 reponse is prepared (see below).

EM61 Color Contoured Map



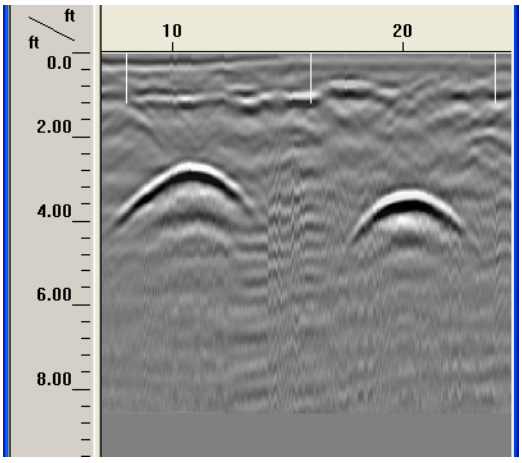
The EM61-MK2 detects a single 55 gallon drum at a depth of over 10-feet beneath the instrument, yet it is relatively insentsitive to interference from nearby surface metal such as fences, buildings, cars, etc. By making the measurement at a relatively long time after termination of the primary pulse, the response is practically independent of the electrical conductivity fo the ground.

Due to it unique coil arrangements, the response curve is a single well defined positive peak greatly facilitating quick and accurate location of the target, the depth of which can usually be estimated from the width of the response and/or from relative response from each of the two receiver coils.

GPR

This method is one of the most powerful and cost effective methods of locating man made objects and stratigraphic layers in the subsurface. It is an active method that transmits electromagnetic pulses into the ground, the radar pulses are reflected from materials or layers of differing dielectric and electrical conductive properties. The GPR computer measures the elapsed time in billionths of a second (nanoseconds) from when the pulses are sent and when they are received back at the surface that can then be converted to depth. Results of the radar scan are displayed as a continuous cross section of the subsurface on the computer screen in real time. Metallic materials such as tanks, pipes conduits, rebar etc. have vastly different dielectric properties then soils so there reflections are striking and relatively easy to identify. Pipes and tanks constructed of PVC, concrete, and terracotta also produce distinct reflections, however, these reflections are typically not as striking as metallic materials. A typical radar image of two metallic underground storage tanks is found below.

GPR Image Of Two Metallic USTs



GPR surveys are conducted with the most advanced GPR equipment currently available

PO Box 518
New Hope, PA 18938
ffendler@tpienv.com
www.tpienv.com
888-204-3266-Phone
888-204-3266-Fax

Attachment A
TPI's Geophysical Survey Equipment & Methods

including a Geophysical Survey Systems (GSSI) SIR-3000 subsurface radar unit with a 400 MHz antenna. The 400 MHz antenna has a depth range of approximately 20-feet and other antennas may be employed with the system depending on specific site conditions and objectives of the survey. The GPR transect data may be saved on the internal hard drive and transferred to a PC for storage, printing, and post processing. GSSI is the world leader in the development of GPR systems and was the first company to commercialize GPR in 1970. GPR hardware and software has improved dramatically over the last several years allowing for relatively rapid and economical GPR surveys. With 3-dimensional capabilities, the latest GPR software takes data processing a step farther then the former 2-dimensional viewing method. Three-dimensional visualization helps you to see the whole picture, giving you a powerful tool to interpret complex utility layouts and identify subtle linear features that may have otherwise been missed.

GPR surveys are typically conducted by searching for GPR hyperbolas indicative of subsurface pipes or tanks signatures in the vicinity of known entities. Theses signatures are marked on the ground and areas progressively further from the known entity are scanned and marked. This process is continued until the GPR operator performed enough scans to determine and mark the subsurface pipe, tank or anomaly. During this process the GPR data is typically not saved due to the immense size of the data files. After this phase of the GPR survey is completed, representative GPR transects or grids are performed and saved for the report and post processing. Some of the factors that may negatively affect GPR results include clay soils, rebar in concrete, high moisture content, depth of the target, and the integrity, size, and material of the target.

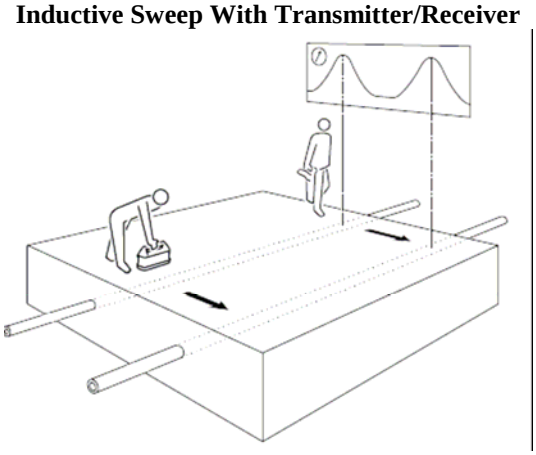
TW-6 EM Unit

TPI routinely employs a Fisher TW-6 electromagnetic metal detector when performing GPR surveys. The TW-6 creates an electromagnetic field with a transmitting coil and measures the strength of that field with a receiving coil. As the TW-6 passes over electrically conductive materials such as metal tanks or drums the field is distorted and the instrument produces an audible alarm based on the degree of the distortion. The TW-6 can detect conductive materials the size of drums or small tanks to depths of 10-feet. The instrument is actually a relatively poor metal detector which makes it ideal for locating large conductive materials such as metal drums, medium to large metal pipes, reinforced concrete pipes, and metal tanks. A more sensitive metal detector would produce "false positives" on small pieces of metal that are typically found in fill and throughout developed sites. If the survey area is underlain by reinforced concrete or cars and other large surficial metallic features are within 10-feet, the TW-6 will not be useful.

Line Locating

Line locating is performed with a Radiodetection RD400 PXL-2 line locator with a 433 HCTX-2 transmitter. The transmitter emits a specific radio or electromagnetic signal which is indirectly induced or directly conducted onto the metallic line. The transmitter is capable of producing frequencies of 512 Hz, 8 kHz, or 33 kHz and the receiver is configured for the specific transmitted frequency. The induced signal is coupled with the line by either using an induction clamp which surrounds an exposed line or placing the transmitter above a buried line and transmitting the signal to it. The receiver may also be used in a passive locate mode (power) to identify the presence of current carrying lines. Nonmetallic lines may also be located by snaking a sonde down accessible lines with push rods. A sonde is a small transmitter that emits a specific electromagnetic frequency which can be detected by the receiver at depths of 12 to 16-feet.

Inductive Sweep With Transmitter/Receiver



PO Box 518
New Hope, PA 18938
ffendler@tpienv.com
www.tpienv.com
888-204-3266-Phone
888-204-3266-Fax